UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,615	06/25/2003	Junichi Kimura	500.42887X00	2496

			EXAMINER
24956	7590	01/26/2007	ARANI, TAGHI T
MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.			
1800 DIAGONAL ROAD			ART UNIT / PAPER NUMBER
SUITE 370			
ALEXANDRIA, VA 22314			2131

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/602,615	KIMURA, JUNICHI
	Examiner	Art Unit	
	Taghi T. Arani	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 June 2003</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>25 June 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-12 have been examined and are pending.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 10-12 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Claims 10-12 are directed to "scramble program" and "descramble program" not

limited to tangible embodiments. As such, the claims are not limited to statutory subject

matter and are therefore non-statutory

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the

international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2 and 5-9 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2002/0188570 to HOLLIMAN et al. (hereinafter "HOLLUMAN").

As per claim 1, HOLLIMAN teaches a digital video scrambler, comprising (paragraphs 0032, 0035 and Fig.1):

a parser for parsing the content of a digital-encoded input video stream to detect a header portion thereof (paragraph 0073, where the MPEG bitstream is represented as an image header and macroblocks MB1 and MB2 for example),

a controller for generating a pseudo random-number, and determining a substituted-character position in said input video stream other than said detected header portion, using said pseudo random-number (paragraph 0076 and 0077, where scrambling mechanism alters some coefficients of at least some blocks of the bitstream and responsive to a key (e.g. random number), coefficient selection mechanism selects some of the available coefficients to be altered by scrambling mechanism, see also paragraphs 0082 and 0097,)

a substitutor for performing a scramble processing of said input video stream by a character substitution processing at said determined position (paragraph 0078, where the coefficients are altered by inverting the sign of selected coefficients whereby the header data is not altered, see also paragraph 0095 for scrambling by permutation of the order of blocks), and an output unit responsive to said substitutor for outputting said scramble-

processed video stream (paragraph 0047, where the scrambled block are provided to transmitting receiving block for transmission to remote computer or the disc writer).

As per claim 2, HOLLIMAN teaches the digital video scrambler according to claim 1, further comprising an input unit for inputting information for specifying a scramble level corresponding to said inputted video stream, an encryption key generator for creating a private key, and an encryption unit for encrypting and outputting said inputted information by using said private key, wherein said controller uses said information in addition to said pseudo random-number (paragraphs 0046-0047, visual scrambling and bit encryption are disclosed, where scrambling includes various levels of degradation, where a key may include a password, remote computer number, and or block number which may be hashed and or concatenated, see also paragraph 0069 disclosing scrambling digital signals with level of degradation in the scrambled signal).

As per claims 5 and 6, HOLLIMAN teaches the digital video scrambler according to claims 1 and 2 respectively, wherein there are provided said substitutor in plural number, and said controller determines substituted-character positions each of which corresponds to each of said plural substitutors, and allocates said substituted-character positions to said plural substitutors (paragraph 0080 discloses that a strength parameter mechanism selects a strength parameter indicating that only coefficients Q0-Q20 are available to be altered and responsive to a key, coefficients selection mechanism selects coefficients Q0,Q1,Q4,Q6,Q8 and Q15 of the luminance coefficients of DC block B0, see also paragraph 0082).

7. The digital video scrambler according to claim 3, wherein there are provided said substitutor in plural number, and said controller determines substituted-character positions each of which corresponds to each of said plural substitutors, and allocates said substituted-character positions to said plural substitutors.

As per claim 8, HOLLIMAN teaches a digital video descrambler connected via a network to said scrambler according to claim 1, said descrambler comprising (Fig. 7 and associated text, remote receiving computers having decoders to undo protection of a protected set of segments, see also Fig 14 and associated text):

a unit for acquiring said substitution-processed inputted video stream, a parser for parsing said content of said inputted video stream to detect said header portion thereof (paragraph 0083 disclosing a descrambling decoder included in remote receiving computer which includes a descrambling mechanism from receiving scrambled video from link 226 which descrambles the scrambled video signal, parser is inherent in the disclosed descrambling mechanism, because the header data is not altered in the scrambled video signal as disclosed in paragraph 0078),

a controller for generating a pseudo random-number based on a private key, and determining a substituted-character restoring position other than said header portion using said pseudo random-number, and an inverse substitutor for performing a substituted-character restoration processing at said determined position (paragraph 0078 and 0083 where the decoder 260 includes coefficient selection mechanism and a strength parameter using the same key as used in the scrambler and in decoder a private key and other

parameters are hashed to generate a pseudo-random sequence (paragraph 0088) which is used to select a subset of coefficients for sign inversion, see also paragraphs 0098-0099 which disclose descrambling decode mechanism which receives the blocks in permitted order in buffer 322 and inverse permutation occurs)

As per claim 9, HOLLIMAN teaches the digital video descrambler according to claim 8, further comprising an output unit for outputting identification information via said network, and a receiver for receiving said private key via said network, said private key being sent out as a result of an authentication based on said identification information (paragraph 0081, discloses that the key is a multiple components including a password, a remote computer number (i.e. an identification information), where the remote computer number is obtained through a secure socket layer applet sent to the remote receiving computer·, see also paragraph 0039 where the RCN is stored in the scrambling computer and matched during playback) .

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 3-4 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable

over HOLLIMAN as applied to claims 1 and 2 above, and further in view of US

5,991,403 to Aucsmith et al. (hereinafter "Aucsmith").

As per claims 3 and 4, HOLLIMAN teaches the digital video scrambler

according to claims 1 and 2, except further comprising an encryption parameter generator

for generating a pseudo random-number to create a substitution table, and said substitutor

performs said character substitution processing by using said substitution table.

However in an analogous art, Aucsmith discloses encoding MPEG compatible

video data for subsequent compression using GOP-synchronized substitution,

transposition and rotation transformations (Abstract, Fig. 5 and associated text, col. 8,

lines 56-64).

In Aucsmith (col. 10, lines 5-17), when a GOP (Group of Pictures) is detected an

encryption key is generated using a random number generator. Once the encryption key

for a GOP is generated, the key is divided into a pair of indices and an offset value at a

row and a column in an S-box substitution table (see Fig. 6) specified by indices is added

to all YUV data in a frame and modified YUV data is substituted for the YUV data.

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to incorporate the teachings of Aucsmith for a substitution

table into HOLLIMAN's digital video scrambling and descrambling to allow the

encrypted/decrypted video data to be subsequently compressed/decompressed without

loss of encryption information, using standard-compliant MPEG compression scheme, thus maintaining the video data in secure format at all points in the video decoding/display system where it is vulnerable to unauthorized acquisition (col. 2, lines 19-36, see also col. 3, lines 29-43).

Claims 10-12 are scramble and descramble programs corresponding to scrambler /descrambler of claims 1, 3-4, 8-9. Claims 10-12 arte rejected for the same reasons provided in the rejections of claims 1, 3-4, 8-9 above.

Conclusion

5. Prior arts made of record, not relied upon:

Please see attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taghi T. Arani whose telephone number is (571) 272-3787. The examiner can normally be reached on 8:00-5:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Taghi T. Arani, Ph.D.
Primary Examiner
Art Unit 2131
1/16/2007